RECEIVERS, METHODS, AND COMPUTER PROGRAM PRODUCTS FOR AN ANALOG MODEM THAT RECEIVES DATA SIGNALS FROM A DIGITAL MODEM

Abstract of the Disclosure

Receivers, methods, and computer program products can be used to demodulate a data signal transmitted from a digital source, which has a network sampling rate that is synchronized with a network clock. In an illustrative embodiment, a receiver includes a two-stage interpolator that receives digital samples of the data signal as an input and produces an

5 interpolated digital sample stream to be filtered by an adaptive fractionally spaced decision feedback equalizer. The digital samples received in the interpolator are synchronized with a local clock; however, the interpolated sample stream is synchronized with the network clock. A slicer generates symbols for the samples output from the decision feedback equalizer by comparing the samples with a reference signaling alphabet. The receiver can be used in a

10 V.90 client modem to demodulate pulse code modulated (PCM) data transmitted as pulse amplitude modulated (PAM) signals from a digital network. In addition, the receiver is compatible with legacy analog modem front ends and transmitters . The two-stage interpolator allows the timing synchronization to be performed with extremely fine granularity, which can be useful in PCM modems that typically require relatively high signal

15 to noise ratios.